



Do Fruit Lose Or Gain Vitamin C After Being Picked

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Introduction:

Vitamin C is very important in the human body, though the amount of vitamin C vary according to the age, sex and type of work. In the body there are no locations where excess vitamin C is stored. Therefore it is needed every day. Vitamin C is highly obtained in fruits especially citrus fruits. In Singida region its climate is semi-desert, there is shortage of fruits, and the people depend to the fruits imported from other regions like Geita, Tabora, Morogoro, Kilimanjaro and Coastal region. It takes more than three days during transportation.

This project is interesting to determine if the amount of vitamin C increase or decrease after being picked. The project will motivate people in Singida region start to cultivate their own fruits rather than depending on the imported fruits.



Method:

In this project, interesting method for determining the amount of vitamin C in solution was titration. Titration is used to determine the unknown concentration of a chemical in a solution. In titration, a carefully measured amount of second chemical was gradually added to the solution. The added chemical reacts with the original chemical, whose concentration was unknown. The chemical whose concentration was known is control (Titration solution) while with unknown concentration is experimental (Titrant). The titration solution reacts with Titrant, and the progress of this reaction was carefully monitored. When 100% of the original compound has reacted with the added chemical, the titration is complete. The concentration of the original chemical was determined from the amount of titration that was added.

After calibrating the iodine solution with a known concentration of vitamin C (Tablet), the same procedures was repeated to determine how much vitamin C was present in fruit squeezed juices.

The chemical reaction of iodine with vitamin C is redox reaction. The ascorbic acid is oxidized to dehydroascorbic acid, and the iodine is reduced to iodine ions.

This project base on investigating on how different storage times affect the amount of vitamin C in fresh squeezed fruit juice.



Results:

We collected four different fruits from fruit trees, the fruits was water melon, lemon, pineapple and oranges

These fruits was selected randomly and grouped into five groups. Group one was used in day one, second for day two, third, fourth and fifth for day three, day four and five respectively.

| S/N | FRUIT | MASSES IN mg | | | | |
|-----|------------|--------------|-------|-------|-------|--------|
| | | DAY 0 | DAY 3 | DAY 6 | DAY 9 | DAY 12 |
| 1. | ORANGE | 19.19 | 14.30 | 13.89 | 13.72 | 13.10 |
| 2. | LEMON | 10.07 | 9.32 | 9.54 | 8.72 | 7.51 |
| 3. | WATERMELON | 5.20 | 4.70 | 4.35 | 3.68 | 3.12 |
| 4. | PINEAPPLE | 7.12 | 7.00 | 6.72 | 5.80 | 5.20 |

RESULTS ANALYSIS

From the results and graph seems that the amount of vitamin C (Ascorbic acid) decrease as the time goes since it has being picked from tree fruits. There correlation between the amount of vitamin C in the sample and the time that passed since picking the fruit.

LIMITATIONS OF RESULTS

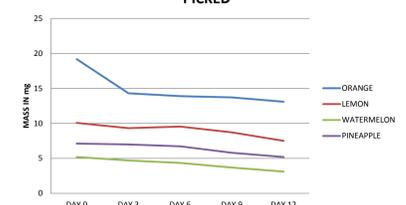
Variation of temperature during experiment.

Air, especially oxygen may hinder the chemical composition of the fruit juice

Uniformity of picking the fruits, because we were not more accurate on the exact time of picking the fruits from their tree.



GRAPH OF MASS (mg) OF ASCORBIC ACID IN FRUITS AGAINST TIME (DAY) AFTER BEING PICKED



Conclusions

Time of fruits from being picked affect the amount of vitamin C in fruits. The amount of vitamin C decrease with time. The fruits for vitamin C require to be picked for short period of time. Though there are other factors which may affect the amount of Vitamin C in fruits like temperature and maturity. This project educates people to use fresh fruit for vitamin C and motivate to be with habit of planting their own fruits at home.

VARIATIONS

Next time the experiment can be extended to compare different storage methods for fruits. What effect does refrigerated storage have on vitamin C levels? Is refrigeration better at preserving vitamin C than room temperature storage? Does the type of container (eg glass bottle, paperboard carton) matter on decrease the amount of vitamin C in the fruit juice?

Acknowledgments

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